BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Foundation Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Extended Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Building Services Engineering Pearson BTEC International Level 3 Extended Diploma in Building Services Engineering
Unit number and title	**Unit 16: Provision of Primary Services in Buildings**
Learning aim(s) (For NQF only)	**Learning Aim C:** Understand the principles of the provision of simple, single-phase electrical systems and domestic gas installations
Assignment title	Electrical Systems and Gas Installations in a dwelling
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are working as a trainee engineer in a company which specialises in design and installation of building services in both domestic properties and commercial sectors. You are working with the team which deals with domestic properties. The senior management as well as your team leader is concerned that the quality of working drawings has significantly dropped lately causing more site queries than ever before. The site staff has also reported on number of occasions about design inaccuracies in the overall layouts and how electrical systems and gas installations are integrated within a property. There have also been some near misses on site while carrying out gas installations. The investigation has revealed that more training and awareness is required about safe working practices. The management is taking actions to remedy the situation on short term basis. However, they believe that other long terms solutions are required. One of these is to produce guidance documents which all employees would use during design and installation of services. As you achieved very high grades in your BTEC qualification and have demonstrated an excellent attitude towards work, the management considers that you are the appropriate person to undertake this task. You will assume a 3/4 bedroom detached two-storey house. On the ground floor, there is a kitchen which has a sink and a dishwasher as well as a large refrigerator. The kitchen will house a standing oven and a grill requiring sockets and

	spurs. The kitchen will have a large gas hob as well. There will be LED lights provided in dining room and living areas along with two power sockets each. The new combi boiler will be housed in the kitchen. The utility room has a washing machine and a tumble dryer and will require an extractor fan. On the first floor, master Bedroom has an en-suite with power shower. The family bathroom is also on first floor which has bath, separate shower cubicle, wash hand basin and a WC. Both en-suite and family bath room would require extractor fan. Entrance and circulation areas would require LED lights.

Task	Produce a document called *Installing Guide – Electrical Systems and Gas Installation*, using a suitable format as suggested by your line manager. The document will contain illustrations, sketches, line diagrams and photos. Within this well referenced document, include the following: Section A: Underpinning principles • Detailed discussion of principles relating to single phase electrical systems • Detailed discussion of principles relating to support combustion and disposal of combustion products in the context of gas installations. • Health and safety requirements for both electrical systems and gas installations. Section B: Installation With reference to the scenario given, carry out the following: • Provide details of various components required for electrical systems • How to install ring final and radial circuits? Please include circuit diagrams, annotations and discussion of components required in such circuits including conductors, earthing, sockets, spurs, lighting and high power appliances. • How to carry out gas installations? Please include illustrations and diagrams to show the layout from entry to connection as well as gas meter arrangements. • Provide good and bad examples of layouts for both electrical systems and gas installations. Please support these examples with a clear rationale. • How the two systems could be integrated? Provide good and bad examples for each case. Please support these examples with a clear rationale.
Checklist of evidence required	A well referenced word-processed document using a suitable referencing style such as Harvard.

Pearson BTEC

	Diagrams/sketches/illustrations showing layout and components. Sketches/illustrations of good and bad layouts and integration. Illustrations/sketches to support the discussions

Criteria covered by this task:	
Unit/ Criteria reference	To achieve the criteria, you must show that you are able to:
C.P5	Explain the installation of single-phase electrical systems for both radial and ring final circuits.
C.P6	Explain domestic gas installations from entry to the building to the point of use.
C.P7	Outline the important health and safety requirements relevant to the installation of single-phase electrical systems and domestic gas installations.
C.M3	Analyse the installation of single-phase electrical systems and domestic gas installations in terms of components and layout.
C.M4	Discuss the important health and safety requirements relevant to the installation of single-phase electrical systems and domestic gas installations.
C.D3	Evaluate the installation of single-phase electrical systems and domestic gas installations in terms of components, layout, integration of both services, and compliance with health and safety legislation.

Sources of information to support you with this Assignment	**Books** Burberry, P, *Environment and Services (Mitchells Building Series),* (8th edition), Routledge, 2015, ISBN 9781138167780. This book explains principles of services installations and environmental considerations and is relevant to the content of this unit. Bird, J. *Electrical and Electronic Principles and Technology,* (5th edition), 2013 ISBN 978-0415662857 A very useful resource to understand the principles. Greeno, R, *Building Services Handbook* (8th edition), Routledge, 2015, ISBN 9781138805637. As the name suggests, a handbook covering all aspects of building services in a concise manner. **Journals** *Building Services Engineering Research & Technology (BSERT)*, Sage Publishing This is CIBSE's quarterly journal containing useful research relevant to all aspects of building services engineering. http://journals.sagepub.com/home/bse **Websites** http://www.cibse.org/ This is the website of Chartered Institute of Building

Pearson BTEC

	Services Engineers (CIBSE) which is the professional body for building service engineers. The website contains information about the codes, products and industry updates. http://www.modbs.co.uk/ This is the website of Modern Building Services (MBS) covering a wide range of building services engineering sectors. http://www.bsee.co.uk/ This is the website of Building Services and Environmental Engineer (BSEE). It is an industry journal published monthly and contains in depth technical features on subjects relating to building services. **Above are examples of resources. Further useful resources may be found at** www.edexcel.com/resources/Pages/default.aspx
Other assessment materials attached to this Assignment Brief	*N/A*